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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,364	10/17/2001	Jonathan A. Nagel	1025	6890

7590 10/05/2005

John P. Maldjian
Senior Patent and Trademark Counsel
TyCom (US) Inc.
250 Industrial Way West, Rm 2B-106
Eatontown, NJ 07724

EXAMINER	
TRAN, DZUNG D	
ART UNIT	**PAPER NUMBER**
2638	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/981,364	NAGEL ET AL.	
	Examiner	Art Unit	
	Dzung D. Tran	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,9 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,9 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al. US publication no. 2002/0041431.

Regarding claims 1 and 9, Ohshima discloses in figures 4 and 8, an optical communication system comprising: a transmitting station 1 (i.e. OS of Fig. 4) configured to transmit a plurality of optical signals (for example, signals of C band and L band having wavelengths 1550 nm and 1580 nm respectively, see page 7, paragraph 0076) over an optical information channel (e.g., 3, 4_1, ..., 4_n), each of said signals being at an associated wavelength in a range from about 1560 nm to about 1630 nm (for example, each of signals having wavelengths 1550 nm, 1580 nm of C band and L-band is in a range from about 1560 nm to about 1630 nm), wherein said optical information channel comprises at least one erbium doped fiber amplifier (20 of Fig. 4, 8) and at least one Raman amplifier (3 of Fig. 4, 8) configure to amplify said range of wavelengths (page 6, paragraph 0065, page 7, paragraph 0078) and wherein at least one Raman amplifier (3 of Fig. 8) includes multiple Raman pumps (10_1, ..., 10_i), each

have a different pump wavelengths (page 7, paragraph 0076) and a receiving station 2 (i.e. OR) configured to receive said plurality of optical signals.

Ohshima differs from claim 1 and 9 of the present invention in that he does not specificlly discloses the Raman pump wavelength in a range from about 1480nm to about 1520 nm. However, Ohshima discloses the calculation of the driving conditions of the excitation light source (10_1, ..., 10_i) and of the EDFA in accordance with transmission light (page 7, paragraph 0071). Thus, if it is not inherent, it would be obvious that the Raman pump wavelength must be in a range from about 1480nm to about 1520 nm in accordance with the transmission light range from about 1560 nm to about 1630 nm.

At the time of the invention was made, one of ordinary skill in the art would set the Raman pump wavelength in a range from about 1480nm to about 1520 nm in order to provide the suitable Raman amplifying for the transmission line.

3. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al. US publication no. 2002/0041431 in view of 765 Gb/s over 2,000 Km transmission using C and L band EDFA, Matthew Ma et al. OFC'99, Post deadline papers, PD16 (1999), pp1-3.

Regarding claims 5 and 10, as per claims above, Ohshima discloses all the limitations except for optical information channel spans of at least 2,000 km between said transmitter and said receiver. Ma, from the same field of endeavor, discloses an optical transmission system using L-band amplifier that transmit the L band channels

over the spans of more than 2000 Km (PD16-1, first paragraph PD16-2, last paragraph).

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the teaching of Ma in the system of Ohshima. One of ordinary skill in the art would have been motivated to do this in order to transmit the acceptable optical signal from the transmitter end to the receiver end over the long – haul optical communication system (2000 Km or more) and improve the noise figure (PD16-2- PD16-3).

Response to Arguments

4. Applicant's arguments with respect to claims 1, 5, 9 and 10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran

Dzung Tran
09/30/2005